
PURPOSE OF SIGNALSTRIP

Lithographers are increasingly aware that control of tone reproduction by the halftone process is important to both operating efficiency and quality maintenance. The control of tone reproduction is basically the control of the halftone dot image on film, plate and press sheet.

SIGNALSTRIP provides a sensitive visual signal of changes in halftone dot reproduction, both in platemaking and in printing. It makes available to the lithographer a method of monitoring, with ease and precision, the changes which occur in tone reproduction due to (1) plate gain or loss, (2) print gain and (3) print slur. These three factors are among the most serious problems in halftone quality control and are here briefly discussed.

1. PLATE GAIN OR LOSS

The evaluation of the dots on the plate relative to the halftone dot images on the film, positive or negative, is the first important requirement for the control of tone reproduction. The lithographer today copes with an ever-increasing variety of platemaking techniques and equipment performances. Consistent plate reproduction control under these circumstances is possible only with a guide that monitors the fidelity of dot reproduction on the plate. Exposure, contact intimacy and processing influences are all factors affecting the final dot size, and, since SIGNALSTRIP is sensitive to dot size changes, it can evaluate all these factors.

2. PRINT GAIN

The second important factor in halftone reproduction is the evaluation and control of typical dot size changes in printing. The lithographic process always involves an actual or apparent increase in dot size from plate to blanket to paper. Exact dot-for-dot reproduction is not compatible with all the factors involved in print quality and productivity. The amount of print gain, however, must be standardized and controlled. SIGNALSTRIP provides a measuring and monitoring guide during the press run as well as from one run to another. It also provides a reliable guide for correlating proofing with printing.

The causes for this typical tone gain in lithography are numerous and not exclusively a simple matter of actual dot size expansion. The subject of print gain has been and will continue to be explored extensively by research and

quality control personnel in the lithographic industry. Although this subject is beyond the scope of this article it is appropriate to point out that the factors involved can be roughly divided into two categories:

1. Characteristics of the specific job such as paper, ink, screen frequencies, area coverage (including solid and halftone arrangements), etc.
2. Press and plate characteristics and operating techniques, both mechanical and chemical.

(Typically, the smoother the paper the lower the print gain. Newsprint normally requires a higher gain value than coated papers but on the other hand the larger the areas of coverage and the higher the ink density the higher the gain required. Fine screens cannot accept as much print gain as coarse screens. It is also likely that clean and transparent colors, especially process yellow and magenta, may produce less print gain than cyan and black.)

3. PRINT SLUR

A common problem in lithographic printing is print slur which is actually directional print gain. Normally, slur occurs around the cylinder in the direction of sheet travel. Slur occurs more frequently with coated papers. Although slur is a form of print gain it cannot be considered as a typical factor in printing because it influences halftone reproduction adversely. SIGNALSTRIP therefore isolates print slur from normal print gain.

USES OF SIGNALSTRIP

PLATE GUIDE SECTION

The first section of SIGNALSTRIP consists of alternate fine screen areas and coarse screen areas. The fine screen areas (narrow bars) are visually very sensitive to dot size change and are consequently identified as signal areas. The coarse screen areas (wide bars) are relatively unaffected visually by dot changes and are identified as reference areas. This section of the SIGNALSTRIP has equal tone values for both signal and reference areas in original film strip. The Plate Guide section functions as follows

1. A normal plate image (exact duplication of dot sizes) produces a uniform tone without signal pattern.
2. A sharp plate image (decrease of dot sizes) produces a signal of lighter tone than the reference areas.
3. A heavy plate image (increase of dot sizes) produces a signal of darker tone than the reference.

A quick observation of the Plate Guide section on a plate in the plate room or on the press will enable the lithographer to judge the dot size relationship to the original halftone film image even after the plate has been running on the press.

PRINT GAIN SECTION

The second section of SIGNALSTRIP also consists of alternate areas of fine screen and coarse screen dots. This section, however, has unequal tone values between the signal and reference areas and shows a visual pattern on the plate as well as on the film strip. The signal areas (narrow bars) are of lighter tone value than the reference areas (wide bars). The degree of this visual difference is determined by the size of the dots in the signal areas.

The function of SIGNALSTRIP is to produce a visual guide for evaluating the degree of print gain regardless of the causes. Since some print gain is inevitable in production runs, the Plate Guide section (see previous section) always produces a visual pattern on the printed sheet because the signal and reference areas are initially of equal value. However, a quick visual observation of Plate Guide section does not give adequate judgment of the *degree* of gain.

The Print Gain section, therefore, has built-in gain allowances to provide a series of gain level guides for more accurate visual evaluation. SIGNALSTRIP is supplied with three gain levels designated as High, Medium and Low. A quick observation can determine whether the printing is under, over or matched to the specific gain guide selected for the job.

PRINT SLUR SECTION

The third section of SIGNALSTRIP consists of alternate areas of fine lines of equal frequency placed at 90° to each other. Lines parallel to slur direction are not affected but lines at right angles to slur direction change in width and consequently change visual tone. Therefore a visual pattern will be produced whenever print gain is directional. The intensity of the visual pattern or the density difference of the reading area indicates the degree of slur.

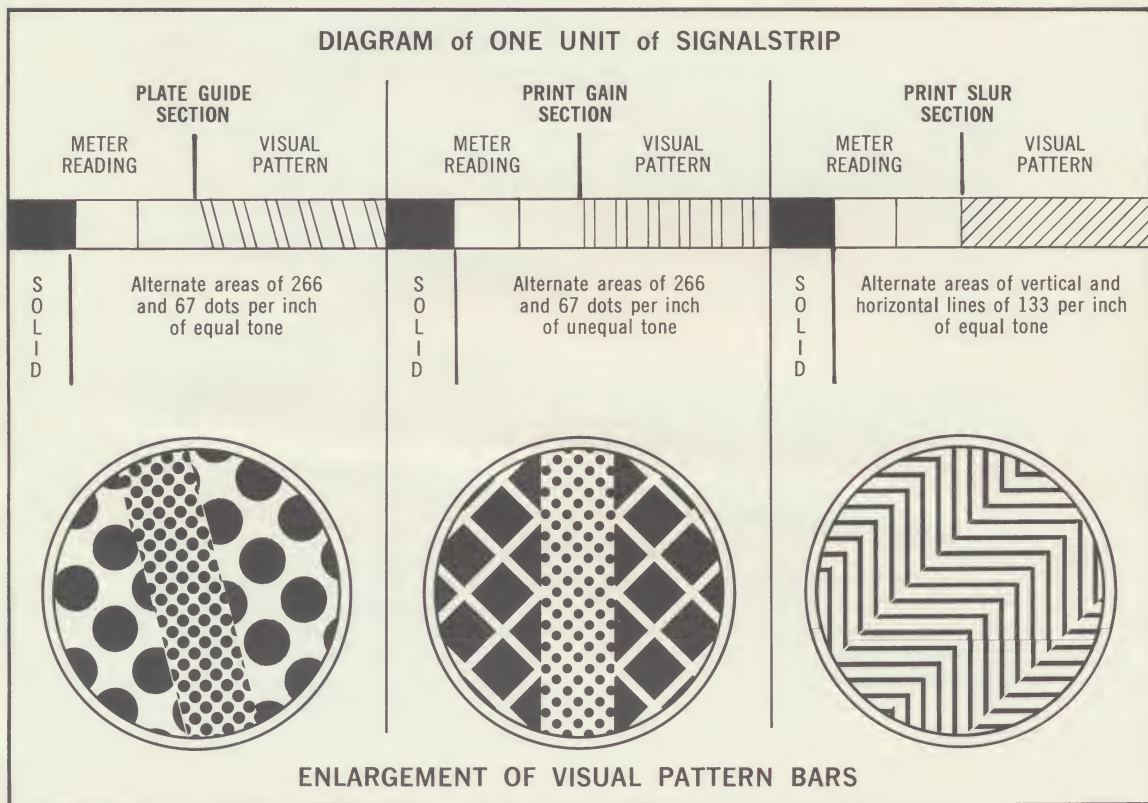
VACUUM CONTACT GUIDE

The Print Slur section of the film strip readily produces a pattern when viewed by reflection with directional lighting due to light trapping by lines at 90°. This feature is very useful to the platemaker for checking the intimacy of contact in the vacuum frame prior to the plate exposure. A flashlight or low intensity trouble lamp held obliquely and moved in a quarter circle will show pattern if the film strip does not have perfect contact with the plate.

DESCRIPTION OF SIGNALSTRIP

SIGNALSTRIP is manufactured on .004 polyester base film. One complete unit is eight inches long, $\frac{1}{4}$ inch wide and is centered on a one-inch film strip. Each SIGNALSTRIP box contains 50 units or 400 inches of continuous film. (Actually, 52 units are provided to allow protection at both ends of the roll.) It is supplied in both positive and negative forms. Each unit of this unique guide is made of three sections and separated by a label for quick visual location of each unit. Each section has both visual pattern producing areas and density reading areas. Solid areas for ink density readings are spaced 2 inches apart over the entire length of the strip.

DIAGRAM of ONE UNIT of SIGNALSTRIP





LITHOS *inc*

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September 29, 1964

Mr. Theodor H. Nelson
Box 1546
Poughkeepsie, New York 12603

Dear Mr. Nelson

In reply to your recent inquiry about the Baker Signalstrip, we are enclosing complete information, samples, and wall chart guide.

Signalstrip is available through Graphic Arts Supply Dealers. A list of authorized dealers is shown below, and a copy of this letter has been sent to the dealer whose name has been checked. I'm sure he will contact you soon with complete information on how the Signalstrip system can benefit your company. If you wish to contact another dealer, please refer to the list below.

Thank you for inquiring. Now that we know you are interested, we will keep you informed of future Signalstrip developments.

Very truly yours,

Robert Zastrow

Robert Zastrow
Sales Manager

SIGNALSTRIP DEALERS

NATIONAL

✓ Roberts and Porter, Inc.
Harold M. Pitman Company

CANADIAN

Canadian Fine Color Co., Inc.

REGIONAL

Chicago Litho Products
Image Supplies Inc.

FOREIGN

Printing Developments
International Ltd.

If there is no dealer in your territory as yet, Lithos, Inc. will fill Signalstrip orders direct. Tell your graphic arts dealer about your interest in Signalstrip -- it's a line he should have!

SIGNALSTRIP® PRESSROOM CHART

NORMAL APPEARANCE OF SIGNALSTRIP ON PRESS SHEET



PLATE GUIDE SECTION

PRINT GAIN SECTION

PRINT SLUR SECTION

DISREGARD THIS SECTION



DISREGARD THIS SECTION

1 - Signals Gain Matched

DISREGARD THIS SECTION



DISREGARD THIS SECTION

2 - Signals Gain Underprinted

DISREGARD THIS SECTION



DISREGARD THIS SECTION

3 - Signals Gain Overprinted

DISREGARD THIS SECTION



4 - Signals Normal Print

DISREGARD THIS SECTION



5 - Signals Print Slur

HOW TO CHECK DOT SIZE GAIN

Watch narrow bars in PRINT GAIN SECTION on press sheet

- 1 - No pattern signals selected gain matched
- 2 - Light bars signal underprinted gain
- 3 - Dark bars signal overprinted gain

HOW TO CHECK PRESS SLUR

Watch pattern bars in PRINT SLUR SECTION on press sheet

- 4 - No pattern signals normal print
- 5 - Alternate dark and light bars signal print slur

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OVER

SIGNALSTRIP® PLATEROOM CHART

NORMAL APPEARANCE OF SIGNALSTRIP ON FILM POSITIVE



PLATE GUIDE SECTION

PRINT GAIN SECTION

PRINT SLUR SECTION

HOW TO READ SIGNALSTRIP ON THE PLATE



DISREGARD THIS SECTION

1 - Signals Facsimile Dots



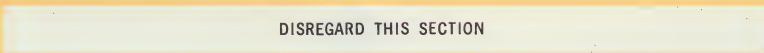
DISREGARD THIS SECTION

2 - Signals Sharp Dots



DISREGARD THIS SECTION

3 - Signals Heavy Dots



DISREGARD THIS SECTION



4 - Signals Good Contact



DISREGARD THIS SECTION



5 - Signals Poor Contact

HOW TO CHECK DOT SIZE

After plate is finished, watch narrow bars in
PLATE GUIDE SECTION

- 1 - No pattern signals dot-for-dot images
- 2 - Light bars signal sharp dots
- 3 - Dark bars signal heavy dots

HOW TO CHECK CONTACT

Before exposure, after film flat and plate are under
vacuum, hold a light at a low angle to **PRINT SLUR**
SECTION

- 4 - No pattern signals good contact
- 5 - Alternate dark and light bars signal poor contact

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OVER



NEW SIGNALSTRIP SYSTEM

...assures image quality and consistency



From...
FILM TO PLATE
PLATE TO PRESS SHEET
PRESS SHEET TO PRESS SHEET
FORM TO FORM
JOB TO JOB
SHIFT TO SHIFT
PLANT TO PLANT

NOW...an inexpensive visual print guide



Quality and consistency in lithography are based on control of tone reproduction which, in turn, is based on control of the halftone dot image on the film, plate and press sheet.

Dot for dot reproduction is not compatible with all factors involved in print quality and productivity, however, the amount of print gain can be standardized and controlled with Signalstrip®. In addition, Signalstrip will cut production costs by immediately signalling the pressman when tone deviations occur. Minutes, even hours, can be saved—quality can be maintained, to the pride of the craftsman and the satisfaction of the customer.

Signalstrip is a simple, highly effective visual control for all types of lithography (including metal decorating) for one color or multi-color process work where a strip is used for each color.

Signalstrip is a Reg. T.M. of Lithos, Inc.
Patent Pending

IMMEDIATE REACTION TO TONE DEVIATIONS



Baker Signalstrip is a continuous strip of film, negative or positive, with three sections (see above) made up of fine dot and line patterns extremely sensitive to image size change. Signalstrip immediately indicates, through an obvious pattern or "signal", any deviation from "normal" dot image on the plate or press sheet. It enables the platemaker or pressman to judge dot size visually in relation to the original halftone film image. Refer to our Plateroom and Pressroom Charts for the appearance of Signalstrip under operating conditions.

Signalstrip is an aid to the craftsman . . . it indicates a problem only . . . it does not offer the solution. For example, one very difficult problem to pinpoint is print slur. In many cases, the amount of dot deformation is so minute, it is hard to detect with a magnifying glass or densitometer. Signalstrip will signal slur immediately, while the job is running, and tell whether it occurs around the cylinder or side to side. With slur quickly indicated, the pressman can save considerable paper, ink and time. The job of Signalstrip is to indicate quickly, while the press is running, any dot size deviations that will affect reproduction . . . the important job of finding the cause of the deviation and correcting it is the pressman's.

Here, at last, is an inexpensive means of communication in the plateroom and pressroom, and **between** the platemaker and pressman.

Web Press Paper Saver

Web Press owner estimates a 3% paper saving, thanks to Signalstrip's ability to quickly indicate trouble.

Plants Separated Geographically Use Signalstrip and Densitometer

PROBLEM: Magazine publisher with plants a thousand miles apart must maintain consistency.

Problem solved by airmailing press sheets with Signalstrip and indicating densitometer readings.

Signalstrip Maintains Consistency For Book Publisher

PROBLEM: Many forms run on several presses.

Signalstrip becomes the common denominator to assure same quality from signature to signature in the bound book.

Signalstrip Test in Plateroom Results in 50% Faster Exposures.

PROBLEM: To determine best exposure time.

Signalstrip's highly sensitive reaction to dot change enabled this platemaking department to re-evaluate exposure times . . . new times are less than half of those previously used. Plate production is increased with the same personnel and equipment.



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how to use... **SIGNALSTRIP**

Strip Signalstrip to your flat in any waste, retrim or margin area of the press sheet; then expose and develop with the plate. Although you can use one single unit, in order to have complete control of the full press sheet it is recommended that Signalstrip run the entire length of the sheet, parallel to the grippers. (It can be used at right angle to the grippers if necessary.) If space does not permit the normal $\frac{1}{4}$ " width, the strip can be masked or cut to $\frac{1}{8}$ " without losing its visual signalling qualities. If space is not available on the press sheet, the strip can still serve as a platemaking guide by being placed on the plate beyond the press sheet limits.

Signalstrip is precision manufactured in the three types described in the table below. All three types are identical, except for the print gain sections which differ in the amount of built-in

print gain provided. These three print gain allowances are identified as High, Medium and Low and provide more accurate visual signal control when properly selected to meet specific printing conditions. Many plants, however, standardize on one gain (usually the Medium Gain strip) for all their jobs.

Because paper is a major factor affecting print gain, the table below gives recommendations for the selection of gains on this basis.



PRICE PER BOX — \$37.50

STOCK NO.		DESCRIPTION	RECOMMENDED FOR
POSITIVE	NEGATIVE		
1100	1200	High Gain	Use with coarse stock, news print, embossed stock, or any stock requiring excessive pressure.
1160	1260	Medium Gain	Use with coated sheets, all better grades of paper.
1135	1235	Low Gain	Use with process work, very hard finish stock (cast coated, mylar, plastics, etc.).

Signalstrip is manufactured on .004 polyester base film. One complete unit is 8" long, 1/4" wide, and centered on a 1" film strip. The handy dispenser box (shown above) contains a continuous 400" roll of 50 units.

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Baker **SIGNALSTRIP** *in the plateroom*

Strip Signalstrip to your flat. Before the plate is exposed, Signalstrip will indicate good or poor contact. After the plate is finished, it will signal whether halftone dots are heavy, sharp or facsimile.



SIGNALSTRIP *in the pressroom*

On the press sheet Signalstrip reacts while the job is running and, at a glance, indicates underprinting, normal printing, overprinting and slur.

Signalstrip provides a solid reading area every two inches . . . this spacing is coordinated with modern scanning densitometers.

*These are actual experiences . . .
names of companies are available
on request.*

"At 2 A.M. Signalstrip was a 'hero' "

THE PROBLEM: 12-page, two-color brochure. Client needed partial delivery morning after proofs were okayed.

Job ran on two-color press. Day crew put on new blankets and made-ready. Night crew couldn't get a clean screen in color (light tan). Although Signalstrip was on the sheet, pressmen were not thoroughly familiar with it. Plant superintendent got a call at 2 A.M. that job was at a standstill. He rushed to plant, where one look at the Signalstrip indicated the problem area . . . slur around the cylinders. In a matter of minutes the slur was traced to a loose blanket and the job ran. It's interesting to note the slur was so slight and further obscured by the light color, a magnifying glass failed to uncover it.

"We almost pulled the red plate, but Signalstrip said 'no'."

PROBLEM: Bad red reproduction on four-color job run on four-color press.

The densitometer didn't show a difference between solid on progs and press sheet. Signalstrip screamed slur, and subsequent checking proved it right.

SAVED: A new plate and considerable down time.

MORE CASE HISTORIES



SIGNALSTRIP SAMPLES

For Evaluation
in your
PLATEROOM
and
PRESSROOM

One Unit
Negative

One Unit
Positive

PLATEROOM:
Strip Signalstrip
into flat as explained in
folder. Expose and develop
your plate the usual way. Use
Plateroom Chart to check signals.

PRESSROOM: Handle job the usual way.
To determine dot gain or loss or print slur
check Pressroom Chart for signals.

Note: This is a limited test. To get the full value Signal-
strip should run the complete length of the sheet, parallel
to the cylinder.

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